(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 11 November 2004 (11.11.2004)

 \mathbb{PCT}

(10) International Publication Number WO 2004/097445 A3

(51) International Patent Classification⁷:

G01S 5/14

(21) International Application Number:

PCT/US2004/010305

(22) International Filing Date: 2 April 2004 (02.04.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/465,371 60/467,258 25 April 2003 (25.04.2003) US 30 April 2003 (30.04.2003) US

(71) Applicant (for all designated States except US): QUAL-COMM INCORPORATED [US/US]; 5775 Morehouse Drive, San Diego, CA 92121 (US).

(72) Inventors; and

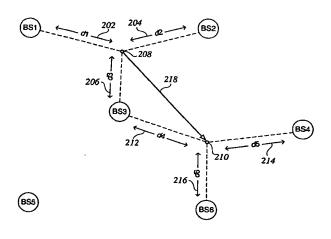
(75) Inventors/Applicants (for US only): GAAL, Peter

[HU/US]; 9515 Easter Way, #6, San Diego, CA 92121 (US). SHEYNBLAT, Leonid [US/US]; 110 Reservoir Road, Hillsborough, CA 94010 (US). PATRICK, Christopher [TT/US]; 14358 Dalhousie Road, San Diego, CA 92129 (US). RILEY, Wyatt, Thomas [US/US]; 540 Stevens Drive, #208, King of Prussia, PA 19406 (US).

- (74) Agents: WADSWORTH, Philip, R. et al.; 5775 Morehouse Drive, San Diego, CA 92121 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: SYSTEM AND METHOD TO OBTAIN SIGNAL ACQUISITION ASSISTANCE DATA



(57) Abstract: Signal acquisition assistance data is obtained for receiving devices such as wireless position assisted location devices (208, 210) seeking signals from any source (B1-B10), such as satellite vehicles and base stations. The data may be obtained from previously acquired data, based upon evaluation of changes in parameters such as time and location that may jeopardize validity. In some cases the data may be adjusted for the changes in parameters. Refined data may be calculated by a receiver using partial measurements of signal sets, particularly if the acquisition assistance data provided by a remote entity includes more distinct parameters than have typically been provided. New data need not be obtained until the validity of previous data expires due to limitations upon temporal extrapolation using Doppler coefficients, unless mobile station movement that cannot be compensated is detected, and jeopardizes validity of the previous data.









(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

 as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

Published:

- with international search report
- (88) Date of publication of the international search report: 9 June 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/TIPO4/10205

A. CLAS	SSIFICATION OF SUBJECT MATTER	PC17US04/10305			
IPC(7) : G01S 5/14					
US CL : 342/357.15, 357.1, 357.08, 464					
According to International Patent Classification (IPC) or to both national classification and IPC					
B. FIELDS SEARCHED					
Minimum documentation searched (classification system followed by classification symbols)					
U.S.: 342/35/.15, 35/.1, 357.08, 464					
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched					
are included in the fields searched					
Flectronic data hase compiled during the investigation of the investigat					
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)					
C. DOCUMENTS CONSIDERED TO BE RELEVANT					
Category *					
X	IIS 5 666 122 A (CAPTER) 00 S	n, where appropriate, of the relevant passages			Relevant to claim No.
•	US 5,666,122 A (CARTER) 09 September 1997 (09.09.1997), see entire disclosure				15, 17, 18, 22-24, 26,
x	US 6,114,992 A (UNDERBRINK) 05 September 2000 (05.09.2000), see entire disclosure.				31 and 33
					15, 17, 18, 22-24, 26, 31 and 33
x	US 6,133,874 A (KRASNER) 17 October 2000 (17.10.2000) see entire disclosure				1-11, 15-20, 22-31, 33
х					- 11, 10 20, 22-31, 33
^	US 6,429,815 B1 (SOLIMAN) 06 August 2002 (06.08.2002) see entire disclosure.				
х	US 6,433,735 B1 (BLOEBAUM et al) 13 August 2002 (13.08.2002) see entire disclosure.				
i	1-38				
Further	documents are listed in the continuation of Box C.	L se	ee patent fami	ly annex.	
* Special categories of cited documents: "T" later document published after the international filing data of					emational filing date or
"A" document	defining the general state of the art which is not considered to	p	ononiv date and n	at in conflict with	the application but cited to derlying the invention
	icular relevance				
"E" earlier app	plication or patent published on or after the international filing	A 0	considered novel of	ular relevance; the or cannot be conside	claimed invention cannot be ered to involve an inventive
		si	tep when the docu	ment is taken alone	
"L" document to establis	which may throw doubts on priority claim(s) or which is cited th the publication date of another citation or other special reason	"Y" d	ocument of partic	ular relevance; the	claimed invention cannot be
(as specifi	(ed)	C	combined with one	ive an inventive ste or more other suci	p when the document is
"O" document	ent referring to an oral disclosure, use, exhibition or other means			obvious to a person	n skilled in the art
"P" document published prior to the international filing date but later than the			locument member	of the same patent	family
priority date claimed					
Date of the ac	ctual completion of the international search	Date of mailing of the international search report			
12 January 2005 (12.01.2005)		2.1- MAR 2005			
Name and ma	iling address of the ISA/US	Authorized officer			
Mail Com	Stop PCT, Attn: ISA/US missioner for Patents	Authorized officer Gregory C. Issing V \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			
P.O. Box 1450			Stable Comments		
	andria, Virginia 22313-1450 . (703) 305-3230	Telephone I	No. 703-306-	4171	
orm PCT/ISA/210 (second sheet) (January 2004)					